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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,902	11/24/2003	Alan L. Billings	930034-2041	5301

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EXAMINER	
WARD, JESSICA LEE	
ART UNIT	PAPER NUMBER
1733	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/720,902	BILLINGS ET AL.	
	Examiner	Art Unit	
	Jessica L. Ward	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/23/06, RCE*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *7 and 9-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

RCE

1. The request filed on 10/23/06 for a RCE under 37 CFR 1.114 based on parent Application No. 10/720,902 is acceptable and a RCE has been established. An action on the RCE follows.

Election/Restrictions

2. Claims 7 and 9-15 remain withdrawn **without traverse** for the reasons set forth in paragraph 1 of the final office action dated 7/7/06.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-6 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, it is unclear as to what "sheet" applicant is referring to in line 8 since a sheet is not previously mentioned in the claim and the specification never refers to a sheet. Applicant is asked to clarify. It is suggested to replace "sheet" with --corrugated paper board--.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Wicker (US 3368933).

Wicker teaches a belt 137 in combination with a corrugated paper board machine (column 1, lines 8-10) comprising a base structure 135 formed by machine direction yarns and cross-machine direction yarns (Figure 16; column 10, lines 24-30), a polymeric resin layer 135 applied to at least one surface of the base structure (Figure 16; column 10, lines 24-30), and a plurality of grooves formed in the polymeric resin layer (column 8, lines 39-61; column 10, lines 68-74). Consequently, the belt would be capable of being a single facer corrugator belt.

As for the plurality of grooves aiding in improved sheet release and increased rate of board moisture removal, this is a function of the grooves and not a structural limitation. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114). Furthermore, the material worked upon (board) by the apparatus and the manner by which the apparatus cooperates with the material worked upon (aiding in improved sheet release and increased rate of board moisture removal) does not further limit the scope of an apparatus claim (MPEP 2115). However, the grooves of Wicker would be capable of aiding in improved sheet release and increased rate of board moisture removal. And although it is irrelevant, the Examiner would like to point out that Wicker expressly teaches the grooves aiding in improved sheet release (column 8, lines 47-49 and 53-61).

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welch et al. (US 5857605) in view Wicker.

Welch teaches a belt 46 in combination with a corrugated paper board machine comprising a base structure formed by fabric plies 119-121 (Figure 11; column 5, lines 35-40), a polymeric resin layer 122 applied to at least one surface of the base structure (Figure 11; column 5, lines 40-44), and a plurality of grooves 105 formed in the polymeric resin layer (Figure 11; column 4, lines 20-23). Consequently, the belt would be capable of being a single facer corrugator belt.

As for the plurality of grooves aiding in improved sheet release and increased rate of board moisture removal, this is a function of the grooves and not a structural limitation. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114). Furthermore, the material worked upon (board) by the apparatus and the manner by which the apparatus cooperates with the material worked upon (aiding in improved sheet release and increased rate of board moisture removal) does not further limit the scope of an apparatus claim (MPEP 2115). However, the grooves of Welch would be capable of aiding in improved sheet release and increased rate of board moisture removal.

It is unclear as to whether the reference teaches the fabric plies of the base structure having machine and cross machine direction yarns. Selection of a particular fabric (i.e. woven)

for the base structure of Welch would have been within purview of one having ordinary skill in the art. However, it would have been obvious to use a woven fabric, and hence a fabric that inherently has machine and cross machine direction yarns, because such is well known and conventional in the art, as taught by Wicker (see above for complete discussion).

9. Claims 1-6 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Billings et al. (US 6470944, of record) in view of Hansen (US 2002/0102894, of record) and further in view of McGahern et al. (US 6428874, of record), as set forth in paragraph 3 of the final office action dated 7/7/06.

With respect to claim 1, Billings teaches a single facer corrugator belt 40 in combination with a corrugated paper board machine comprising a base structure 52 formed by machine direction yarns 56 and cross-machine direction yarns 54 and a polymeric resin layer 66 applied to at least one surface of the base structure (Figure 2; abstract; column 3, lines 10-18; column 4, lines 43-48). In fact, Billings teaches coating **and** impregnating the base structure with the resin so that **complete impregnation of the base structure** takes place because complete impregnation of the base structure, **in addition** to forming a distinct resin layer on the outside surface of the base structure, improves the integrity and durability of the belt (column 4, lines 43-48).

It is unclear as to whether Billings teachings a plurality of grooves formed in the polymeric resin layer.

It is known in the art to make a belt, which can be used as a **long nip press belt in a paper machine or a corrugator belt in a corrugator machine**, having a base structure formed by yarns where grooves are provided in the yarns for temporarily storing water that is removed

from the material as it is conveyed on the base structure, as taught by Hansen (sections [0015, 0021, 0052]). However, unlike Billings, Hansen does not teach impregnating the base structure with a resin.

It is known in the art to make a **long nip press belt for a paper machine** having a base structure formed by yarns and a polymeric resin layer that coats and impregnates the base structure so as to completely impregnate the base structure in addition to forming a distinct resin layer on the outside surface of the base structure where a plurality of grooves are formed in the distinct resin layer for temporarily storing water that is removed from the material as it is conveyed on the base structure, as taught by McGahern (Figure 3; abstract; column 2, lines 61-62; column 4, lines 45-47; column 5, lines 20-22).

Therefore, it would have been obvious to one of ordinary skill in the art to make the corrugator belt of Billings capable of temporarily storing water that is removed from the material as it is conveyed on the base structure because such is known in the corrugator belt art, as taught by Hansen; however, the manner by which Hansen achieves this capability (grooves in yarns) would not be suited to the base structure of Billings whose base structure is completely impregnated with resin. Therefore, it would have been obvious to one having ordinary skill in the art to further look to the teachings of McGahern, who achieves the same capability in a base structure that is completely impregnated with resin by forming grooves in the resin layer, for motivation to provide grooves in the resin layer of Billings, especially since Hansen teaches it being known to use the same belt as a long nip press belt in a paper machine or as a corrugator belt in a corrugator machine.

As for the plurality of grooves aiding in improved sheet release and increased rate of board moisture removal, this is a function of the grooves and not a structural limitation. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114). Furthermore, the material worked upon (board) by the apparatus and the manner by which the apparatus cooperates with the material worked upon (aiding in improved sheet release and increased rate of board moisture removal) does not further limit the scope of an apparatus claim (MPEP 2115). However, the grooves of Billings, as modified, would be capable of aiding in improved sheet release and increased rate of board moisture removal.

Regarding claim 2, Billings in view of McGahern teaches such (column 6, lines 46-47 and 57-58).

Regarding claim 3, whether to use continuous or discontinuous grooves would have been within purview of the skilled artisan especially since one reading McGahern as a whole would have appreciated that the reference is not concerned with particular grooves.

Regarding claims 4-5, Billings teaches such (column 4, lines 2-18 and 43-48).

Regarding claim 6, Billings in view of McGahern teaches such (see Figure 3 of McGahern).

Regarding claim 8, Billings teaches such (column 3, lines 10-18) and/or Billings in view of McGahern teach such (column 4, line 58 – column 5, line 4).

Double Patenting

10. The obviousness-type double patenting rejection of claims 1-6 and 8 of the present Application using US 6470944 to Billings et al., as set forth in the previous actions, stands.

Response to Arguments

11. Applicant's arguments filed 10/23/06 have been fully considered but they are not persuasive.

12. Applicant argues that Billings does not teach a grooved corrugator belt and that the primary purpose of grooves in McGahern is for the temporary storage of water pressed from a paper web. On the contrary, grooves are provided in the belt of the present invention to ease sheet release and increase the rate of board moisture removal.

The examiner reminds Applicant that this is a function of the grooves and not a structural limitation. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114). Furthermore, the Examiner points out that the material worked upon by the apparatus and the manner by which the apparatus cooperates with the material worked upon does not further limit the scope of an apparatus claim (MPEP 2115). However, the grooves of Billings, as modified in view of Hansen and McGahern, would be capable of aiding in improved sheet release and increased rate of board moisture removal.

13. Applicant also argues that the coated sheet contacting the surface of the present invention is vented either with grooves or holes in order to allow moisture-laden air to escape to the atmosphere and not to temporarily store water pressed from a web. There is no requirement or need for "temporary storage" in the present invention.

The Examiner points out that these arguments are not commensurate with the scope of the claimed invention. The present claims state nothing about the grooves allowing moisture-laden air to escape to the atmosphere. And even if they did, the Examiner once again points out

that this is just a function of the grooves and not a structural limitation, wherein the grooves of Billings, as modified in view of Hansen and McGahern, would be capable of such a function. Furthermore, although the present claims do not require "temporary storage," they clearly do not exclude this function. But more importantly, the Examiner points out that the material worked upon by the apparatus and the manner by which the apparatus cooperates with the material worked upon does not further limit the scope of an apparatus claim (MPEP 2115).

14. Applicant argues that one or both of the surfaces of the monofilament yarn base layer of Hansen may be provided with grooves for temporary storage of water. Hansen's yarns are provided with passages for conveying water away from or dewatering a cellulosic fibrous web and not to ease sheet release or increase the rate of board moisture removal.

The Examiner once again points out that this is just a function of the grooves and not a structural limitation, wherein the grooves of Billings, as modified in view of Hansen and McGahern, would be capable of such a function. However, the Examiner also points out that the material worked upon by the apparatus and the manner by which the apparatus cooperates with the material worked upon does not further limit the scope of an apparatus claim (MPEP 2115). Furthermore, the Examiner reminds Applicant that Hansen was only used to show it being known in the art to make a belt that is capable of temporarily storing water and using that belt in a variety of industrial settings, including a long nip press belt in a paper machine and a belt in a corrugator machine.

15. Applicant argues that the difference between other industrial processes and a corrugated paper board machine is that the transfer belt in the former case dewaters a material and has voids in its yarns or fabric structure to temporarily store liquid water, as one skilled in the art would

understand. However, in the latter case, the belt allows passage of moisture-laden vapor from the laminated sheets of paper.

The Examiner once again points out that this is just a function of the belt and not a structural limitation, wherein the corrugator belt of Billings, as modified in view of Hansen and McGahern, would be capable of such a function. However, the Examiner also points out that the material worked upon by the apparatus and the manner by which the apparatus cooperates with the material worked upon does not further limit the scope of an apparatus claim (MPEP 2115).

16. Applicant notes that the moisture-laden vapor in corrugated paper board manufacture is driven off from the gluing operation or sprayed liquid starch and not moisture that was in the sheets making up the corrugated board, and this is why claim 1 has been amended to read "board moisture removal."

The Examiner once again points out that the material worked upon by the apparatus and the manner by which the apparatus cooperates with the material worked upon does not further limit the scope of an apparatus claim (MPEP 2115). However, the Examiner once again points out that the corrugator belt of Billings, as modified in view of Hansen and McGahern, would be capable of Applicant's claimed "board moisture removal."

17. Based on these arguments, Applicant contends that none of the cited references provide for the plurality of grooves aiding improved sheet release and increased rate of board moisture removal.

As clearly set forth in 103 rejection above, Billings in view of Hansen and McGahern teaches a single facer corrugator belt having the same structure as that of the present invention. Therefore, the grooves of Billings, as modified, would be capable of aiding improved sheet

release and increased rate of board moisture removal. However, the Examiner once again points out that the material worked upon by the apparatus and the manner by which the apparatus cooperates with the material worked upon does not further limit the scope of an apparatus claim (MPEP 2115).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Ward whose telephone number is 571-272-1223. The examiner can normally be reached on Increased Flextime Policy Program.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D. Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jessica L. Ward
Primary Examiner
Art Unit 1733